Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army	Date: May 2021
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605038A *I Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-
EQ7: *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	6.054	4.846	8.342	-	8.342
Current President's Budget	5.805	4.669	7.618	-	7.618
Total Adjustments	-0.249	-0.177	-0.724	-	-0.724
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.249	-0.177			
• Adjustments to Budget Years	-	-	-0.724	-	-0.724

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
Appropriation/Budget Activity 2040 / 5	R-1 Program Element (Number/Name) PE 0605038A / *Nuclear Biological Chemica l Reconnaissance Vehicle (NBCRV) Sensor Suite*	Project (Number/Name) EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
EQ7: *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*	-	5.805	4.669	7.618	-	7.618	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Nuclear, Biological, and Chemical Reconnaissance Vehicles (NBCRV) Sensor Suite Upgrade (SSU) provides maneuver formations the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commander's priority intelligence requirements (PIR), and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability with regard to protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queueing to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability. In FY 2020, NBCRV SSU program will develop a prototype of integrated sensors for demonstration in Joint Warfighter Assessment 2020. In FY 2021, NBCRV SSU program will develop hardened and integrated sensors for development test in FY 2022.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Product Development and Unmanned Platform Integration	5.005	4.341	6.780
Description: Development of CSD, radiological detectors, standoff chemical vapor detector, unmanned platform identification and integration, Government strategic planning, system engineering, logistics, training, and Integrated Product Team (IPT) support.			
FY 2021 Plans: Continue CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, and technical support for the accelerated program.			
FY 2022 Plans: Complete CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, integration, and the bulk of component and system level developmental testing. Will conduct Limited User Test.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemica l Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
The increase is to conduct operational testing including Cybersecurity Testing, Limited User Test, and Logistics Demonstration.			
Title: Program Management and Oversight ***Description:*** Program Management and Oversight ***FY 2021 Plans:*** Continue Government program management, system engineering, and Integrated Product Team (IPT) support. ***FY 2022 Plans:*** Complete Government program management, system engineering, and Integrated Product Team (IPT) support. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments	0.800	0.328	0.838
Accomplishments/Planned Programs Subtotals	5.805	4.669	7.618

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU) is an upgrade for the Stryker NBCRV. The acquisition strategy for the Stryker NBCRV SSU is to integrate mature sensors into the Stryker NBCRV in FY 2019 for demonstration in Joint Warfighting Assessment (JWA) 19 and system level testing. Following the testing and demonstration, the hardware and software will be fixed and updated for demonstration in JWA 20 and test in FY 2020. An In Progress Review will be held in late FY 2022 to execute a Modification Work Order for fielding in FY 2023. This schedule was accelerated from the previous schedule based on the maturity of the sensor and guidance from the Chief of Staff of the Army. The NBCRV SSU program will conduct system level testing in FY 2021 using Defense Wide funding after the Modification Work Order In Process Review to ensure system performance.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemica l Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Management Personnel	MIPR	JPEO-CBRND : Edgewood, MD	1.986	0.800	Nov 2019	0.328	Nov 2020	0.838	Nov 2021	-		0.838	Continuing	Continuing	Continuing
		Subtotal	1.986	0.800		0.328		0.838		-		0.838	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development and Sensor Integration	C/Various	Various : Various	12.094	5.005	Nov 2019	4.341	Nov 2020	4.952	Nov 2021	-		4.952	Continuing	Continuing	Continuing
Product Development (CSD) AGENTASE, LLC (TMRR)	Option/ CPFF	AGENTASE, LLC : Elkridge, MD	2.945	-		-		-		-		-	0.000	2.945	-
Product Development (CSD) L3 (TMRR)	Option/ CPFF	L-3 Communications Sonoma EO, Inc : Santa Rosa,, CA	2.627	-		-		-		-		-	0.000	2.627	-
Product Development (CSD) UTC (TMRR)	Option/ CPFF	Hamilton Sundstand Space Systems : Pomona, CA	2.087	-		-		-		-		-	0.000	2.087	-
Product Development (CSD) Rad/Nuc (M2PRDS)	C/CPFF	Advanced Technologies International : Summerville, SC	1.942	-		-		-		-		-	0.000	1.942	-
Product Development (ECBC Matrix)	MIPR	CCDC CBC : Aberdeen Proving Ground	2.259	-		-		-		-		-	0.000	2.259	-
		Subtotal	23.954	5.005		4.341		4.952		-		4.952	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemical Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	MIPR	ECBC : Edgewood, MD	1.301	-		-		-		-		-	Continuing	Continuing	Continuing
Requirements Development Support	Various	Various : Various	0.629	-		-		-		-		-	0.000	0.629	-
		Subtotal	1.930	-		-		-		-		-	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	ECBC : Edgewood, MD	1.483	-		-		1.828	Nov 2021	-		1.828	Continuing	Continuing	Continuing
		Subtotal	1.483	-		-		1.828		-		1.828	Continuing	Continuing	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.353	5.805		4.669		7.618		-		7.618	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemica l Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

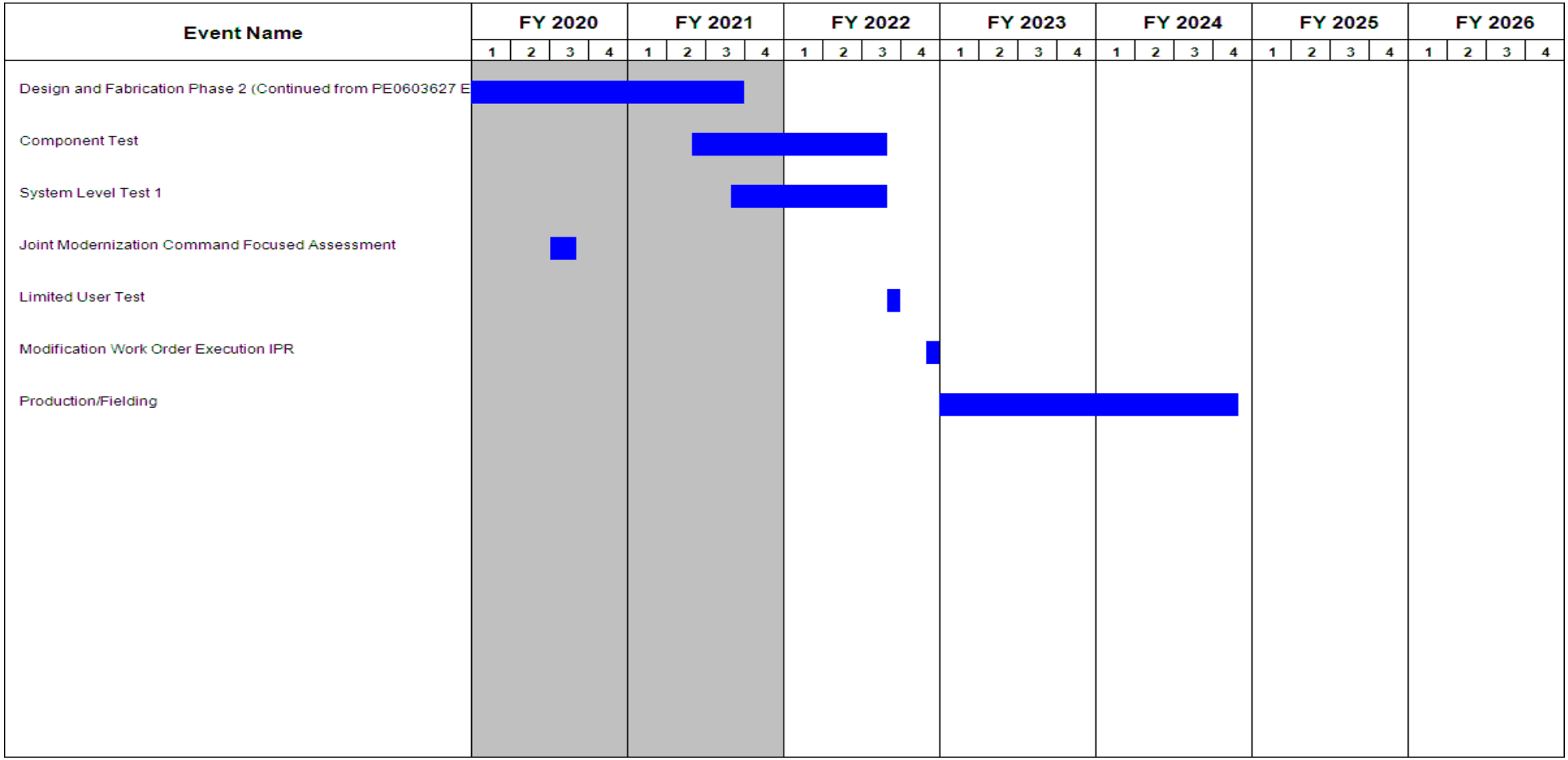

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Army		Date: May 2021
Appropriation/Budget Activity 2040 / 5	**R-1 Program Element (Number/Name)** PE 0605038A / *Nuclear Biological Chemica l Reconnaissance Vehicle (NBCRV) Sensor Suite*	**Project (Number/Name)** EQ7 / *NBC Reconnaissance Vehicle (NBCRV) Sensor Suite*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Design and Fabrication (Continued from PE0603627 E79)	2	2017	3	2019
Joint Warfighter Assessment 2019	3	2019	3	2019
Design and Fabrication Phase 2 (Continued from PE0603627 E79)	2	2019	3	2021
Component Test	2	2021	3	2022
System Level Test 1	3	2021	3	2022
Joint Modernization Command Focused Assessment	3	2020	3	2020
Limited User Test	3	2022	3	2022
Modification Work Order Execution IPR	4	2022	4	2022
Production/Fielding	1	2023	4	2024